NON-PUBLIC?: N
ACCESSION #: 9208180128
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Shearon Harris Nuclear Power Plant - PAGE: 1 OF 3
Unit # 1

DOCKET NUMBER: 05000400

TITLE: Reactor Trip due to Low Pressure Turbine Exhaust Boot Seal
Failure
EVENT DATE: 07/17/92 LER #: 92-010-00 REPORT DATE: 08/14/92

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10
CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Michael Verrilli Specialist - TELEPHONE: (919) 362-2303
Regulatory Compliance

COMPONENT FAILURE DESCRIPTION:
CAUSE: B SYSTEM: SG COMPONENT: EXJ MANUFACTURER: U066
REPORTABLE NPRDS: Y

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On July 17, 1992 at 1218 hours, an automatic turbine trip and reactor trip occurred due to low condenser vacuum. All safety systems functioned as required, including an automatic Auxiliary Feedwater System actuation on steam generator lo-lo level. One Main Steam safety valve (1MS-47) was also observed to open and reseat. Main control room personnel stabilized the plant in mode-3 at normal operating temperature and pressure using the appropriate emergency operating procedures. The cause of the low vacuum condition was a failure of the north low pressure turbine exhaust boot seal. The corrective action for this failure was to replace the entire boot seal on both low pressure turbines instead of the previously performed local repair. Replacement of the boot seals and satisfactory setpoint testing of 1MS-47 were completed on July 21, 1992 and the unit was placed back on line at 2045 on July 22, 1992.

This event is being reported in accordance with 10CFR50.73 (a)(2)(iv) as an unplanned Engineered Safety Feature and Reactor Protection System actuation.

END OF ABSTRACT

EVENT DESCRIPTION:

On July 17, 1992 the plant was operating in mode-1 at 100 percent power. At 1218 hours an automatic turbine trip and reactor trip occurred due to a loss of condenser vacuum. The transient immediately following the

reactor trip caused an automatic actuation of all three Auxiliary Feedwater (AFW) pumps on lo-lo steam generator water level. The AFW pumps operated correctly and were then manually secured by the control operator. Operators also observed that one safety valve (1MS-47) on the "B" Main Steam line (EIIS-SB) lifted for approximately six minutes following the trip, then reseated. This was caused by a pressure increase in the Main Steam System following closure of the Main Steam Isolation Valves (MSIV's) with no vacuum present in the condenser. During the event, the control room staff had initial concerns that Main Steam System pressure never reached the safety valve setpoint of 1185 psig 1%. Based on these concerns, 1MS-47 was declared inoperable until testing could be performed to verify the required setpoint. At approximately 1000 hours on July 21, 1992 three separate setpoint verification tests were completed that proved the setpoint to be within the required band. Subsequent review of steam pressure strip charts revealed that pressure had reached the setpoint band for 1MS-47.

Replacement of the boot seals and testing of the safety valve was completed on July 21, 1992 and the unit was placed back on line at 2045 on July 22, 1992.

CAUSE:

The low condenser vacuum condition was created due to a failure of the north low pressure turbine exhaust boot seal (EIIS-SG, Manufacturer-Uniroyal). This seal is a fabric reinforced rubber expansion joint and appears to have failed due to routine fatigue caused by aging. This failure was similar to the one that occurred five days earlier and resulted in LER #92-007, but occurred in a different location on the boot seal and was not a result of inadequate repair methods.

Following this incident it was determined that the entire boot seal would be replaced rather than performing an additional local repair, as was done after the first failure, The decision to perform a local repair following the July 12th failure was based on the fact that there was less than two months until the upcoming refueling outage at which time the entire boot seal would be replaced, repair time versus replacement time and vendor recommendations based on past repair success. Therefore, this repeat failure is not a result of inadequate corrective actions.

SAFETY SIGNIFICANCE:

There were no safety consequences as a result of this event. Safety systems functioned as required to place the plant in a safe condition.

CORRECTIVE ACTIONS:

1. Replacement of both low pressure turbine boot seals was completed on July 21, 1992.

2. Testing of 1MS-47 was completed on July 21, 1992.

3. Investigation will continue to ensure that other possible exhaust boot failure modes are considered. If a root cause other than routine fatigue is identified, this LER will be revised to include the additional information and corrective actions needed.

EIIS INFORMATION:

Condenser System - SG
Main Steam System - SB

ATTACHMENT 1 TO 9208180128 PAGE 1 OF 1

CP&L
Carolina Power & Light Company
P.O. Box 165 o New Hill, N.C. 27562

C. S. HINNANT
General Manager - Harris Plant

AUG 14 1992

Letter Number: HO-920120

U.S. Nuclear Regulatory Commission
ATTN
NRC Document Control Desk
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PIANT UNIT 1
DOCKET NO. 50-400
LICENSE NO. NPF-63
LICENSEE EVENT REPORT 92-010-00

Gentlemen:

In accordance with Title 10 to the Code of Federal Regulations, the enclosed Licensee Event Report is submitted. This report fulfills the

requirement for a written report within thirty (30) days of a reportable occurrence and is in accordance with the format set forth in NUREG-1022, September 1983.

Very truly yours

C. S. Hinnant
General Manager
Harris Nuclear Project

MV:dmw

Enclosure

cc: Mr. S. D. Ebneter (NRC - RII)
Mr. N. B. Le (NRC - RII)
Mr. J. E. Tedrow (NRC - SHNPP)
Mr. G. E. Vaughn

MEM/LER92-010/1/OS1

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